STABILIZATION SYSTEM AIR TREATMENT INFORMATION PACKAGE

for the

COMMERCIAL OIL SERVICES SITE

OREGON, OHIO

submitted to

CITY OF TOLEDO
DIVISION OF ENVIRONMENTAL SERVICES

and the

OHIO ENVIRONMENTAL PROTECTION AGENCY

prepared by

SOUND
ENVIRONMENTAL
SERVICES, INC.

APRIL 16, 1997

STABILIZATION SYSTEM AIR TREATMENT INFORMATION PACKAGE

TABLE OF CONTENTS

SECTION I	INTRODUCTION
SECTION II	TREATMENT METHOD
SECTION III	AIR EMISSIONS ASSESSMENT / CONTROL SYSTEMS DESIGN
SECTION IV	LOCATION/OPERATOR INFORMATION *EPA FORM 3150a*
SECTION V	EMISSIONS UNIT INFORMATION FORM EPA FORM 3150b
SECTION VI	PROCESS FLOW DIAGRAM
SECTION VII	EQUIPMENT LOCATION DRAWINGS
SECTION VIII	EMISSIONS ACTIVITY CATEGORY FORMS EPA FORM 3100-3863
SECTION IX	ADDITIONAL INFORMATION FORM EPA FORM 3150c
SECTION X	SCREEN 3 MODEL OUTPUT

SECTION I INTRODUCTION

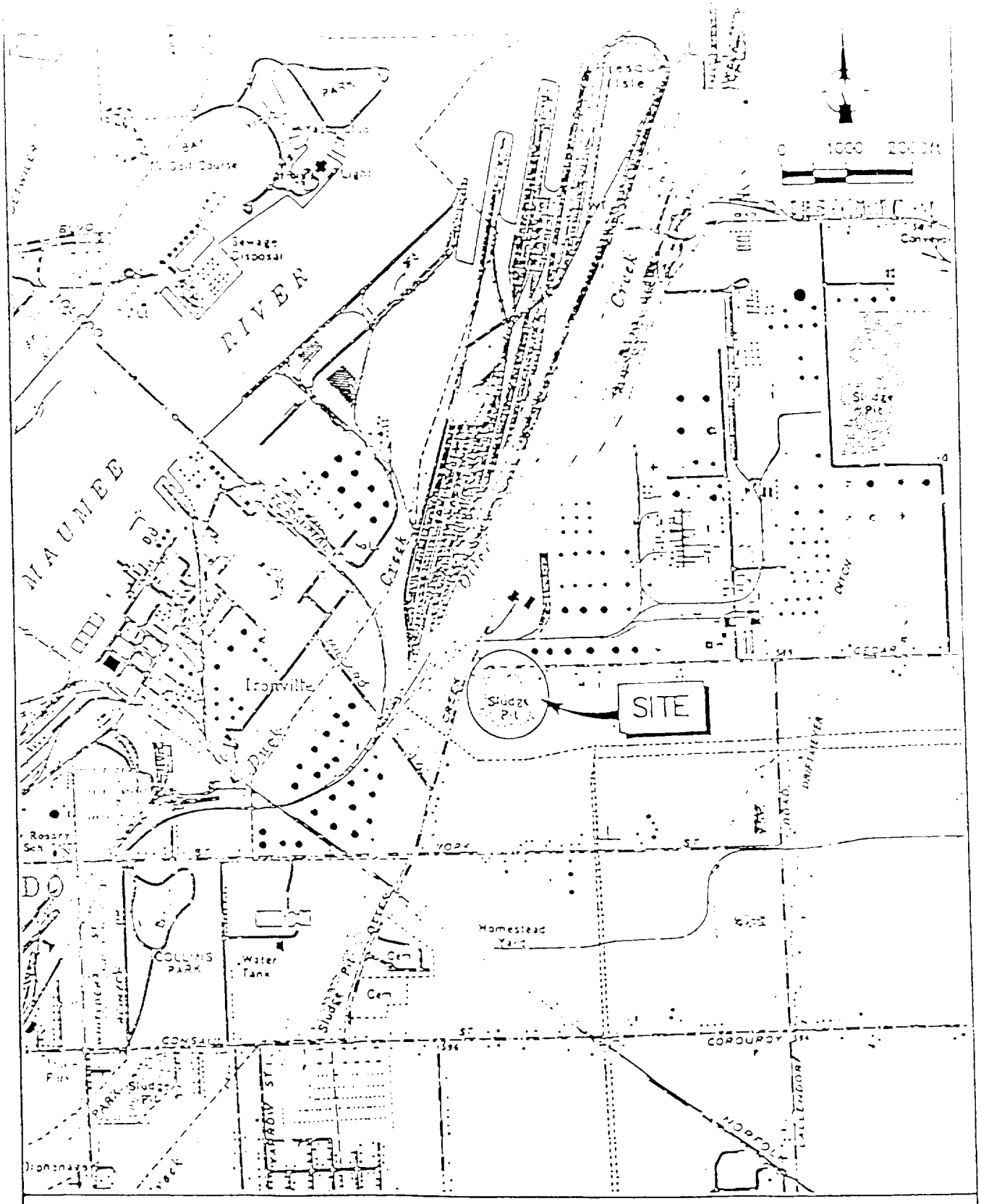
SOUND Environmental Services, Inc. (SOUND) has prepared this *Stabilization System Air Treatment Information Package* in accordance with City of Toledo Division of Environmental Services (TDES) and Ohio Environmental Protection Agency (OEPA) guidelines for the Commercial Oil Services Lagoon Closure Removal Action Project in Oregon, Ohio. A site location map is shown in Figure 1.1.

The SOUND approach to the remediation of the sludges is based upon treating pit sludges using the DCR™ stabilization process and employing patented treatment equipment that incorporates emissions controls. The DCR process is a quicklime based stabilization process that, when applied to oily sludges, results in a soil-like end product. Advantages to the process are low cost, minimal volume increase, no cure period required in treatment.

This package is being submitted for TDES/OEPA review prior to mobilization and installation of the transportable treatment unit and air pollution control system which will be used to stabilize sludges on the site. This site is a Superfund Site and as thus falls under a CERCLA permit exemption from USEPA Region V. No permits are required to install and operate the stabilization system. However, the substantive requirements of the OEPA regulations must be met. This *Information Package* is being provided at the request of Region V to demonstrate to TEC/OEPA that the method undertaken to stabilize the sludges complies with all rules, laws, and regulations of the Ohio and US Environmental Protection Agencies.

Treatability Study Results

Samples provided by Conestoga-Rovers and Associates were used in developing a treatment method for this project. In the first phase of the study alternative reagents were tested to determine the most efficient method for stabilizing the sludges. In this phase, the DCR quicklime based approach was compared to using portland cement, lime kiln dust, and cement kiln dust as stabilization reagents. It was determined that the DCR process would be most effective in converting the waste sludges into a stable and solid material, and that this process would reduce overall project cost. The waste sludges were readily converted to a soil-like product using a 30% quicklime addition. The treated material could be compacted to yield a high structural strength immediately after treatment. No cure time was required



SOURCE: USGS QUADRANGLE MAP
OREGON, OHIO

CRA

figure 1.1
SITE LOCATION
COMMERCIAL OIL SERVICES SITE
Oregon, Ohio

5649 (S) MAR 05/94 (W) REV. 0

SECTION II TREATMENT METHOD

SOUND will implement the DCR organics stabilization process in treatment of the lagoon waste. This process offers several operational advantages over conventional cement based processes, including low volume increase and no cure period, and air pollution control.

Mix Design

In the treatability study performed on the samples provided, it was shown that the DCR process can be applied to the Commercial Oil sludges to produce a soil-like product. In the treatability study, both samples 24 and 30 were treated with applications of 30% calcium oxide. The resulting material is suitable for landfill.

It is anticipated that the actual calcium oxide addition will vary in the field. Experience has shown that less reagent is required in full scale operations to generate an end product similar to that produced in the lab. Thus, it is our anticipation that the actual reagent application will be approximately 25%. Because there is no cure time involved in the DCR process, treatment can easily be monitored as work is ongoing. Adjustments to reagent addition can be made in real time to produce the desired end product.

One clear advantage of the DCR process is that the conversion from the liquid to the solid occurs in minutes. Literally no cure period is required. Therefore, reagent application can be varied on an on-going basis to assure quality of treatment prior to landfill.

Transportable Treatment Unit Description

Reagent will be blended with the waste in a DCR transportable treatment unit, complete with a reaction chamber and an air pollution control system (APC) to capture particulate and volatile emissions during the lime hydration reaction. This patented treatment system will consist of a self contained mixing plant and APC equipped reaction chamber. The mixing plant, where sludges are blended with the lime reagent, consists of a feed hopper, a weigh-belt modulated feeder, a reagent holding tank and a rate modulated reagent feed system. The plant discharges into a live-floor trailer that serves as a reaction chamber where the mixture of lime and sludge react. The live floor trailer will hold the reacting waste until maximum temperatures are attained (less than 100°C).

Sludge and reagent are blended in a dual shaft pugmill mixer. Feed rates are modulated by weight. Sludge feed into the mixer is measured by a weigh-belt conveyor.

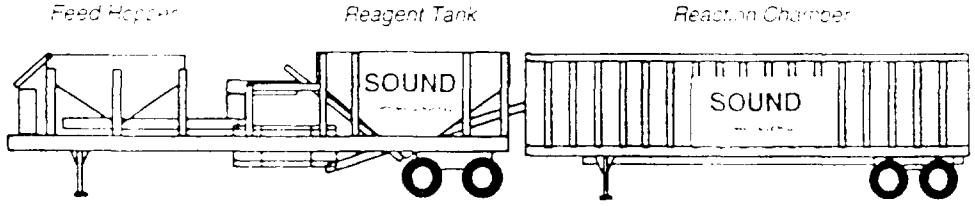
Particulates are contained and controlled through the use of a totally enclosed pneumatic reagent delivery system and reagent storage vessels equipped with particulate bag filters. The entire treatment system is enclosed to control fugitive emissions. The reagent delivery system to the mixer is equipped with closing and locking covers.

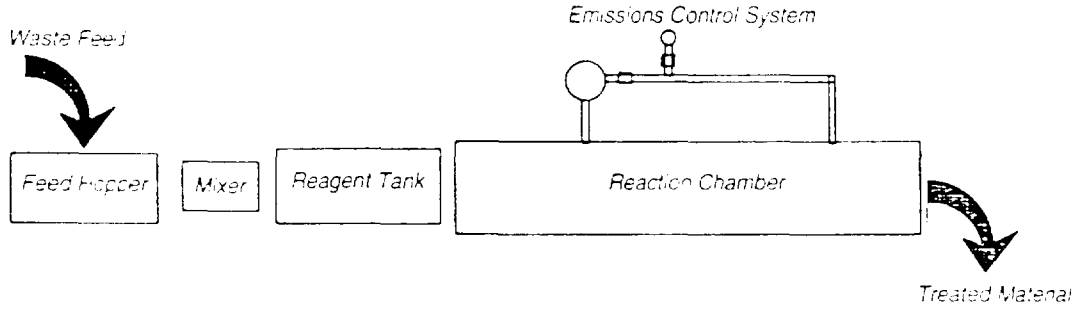
The APC withdraws vapors under negative pressure from the reaction chamber and controls volatile organic emissions from the reacting waste. The APC consists of a bag filter, catalytic oxidation unit, and caustic scrubber where the VOC's are oxidized catalytically to carbon dioxide, water vapor and inorganic acids. The caustic scrubber follows the oxidation step to neutralize the hydrochloric acid (HCl) in the air stream prior discharge to the atmosphere through a demister.

The APC is a Best Available Control Technology (BACT) [illegible] unit process basis typical destruction removal efficiencies (DRE) are as follows.

Purpose	Unit Process	Typical DRE
Particulates	Baghouse Filter	> 95%
Volatile Organics	Catalytic Oxidizer	> 95%
Acid Gas Absorption	Caustic Scrubber	> 90%

Treatment Equipment Schematic





24 Hour Stabilization System Performance Test

After completion of mobilization, safety training, plan approvals, and equipment shake-out activities, a 24 hour stabilization system performance test will be performed. This test will be performed while waste excavation work is being performed to consolidate lagoons 2, 3, 4, and 5 into lagoon 6. The 24 hour stabilization system performance test will be performed over three 8-hour operating days, with 3 separate stack tests being performed for the three test runs.

Use of the DCR process in waste treatment will enable shortening the duration of the 24-hour test confirmation sample period. The project specifications call for waste samples to be taken for TCLP testing at 28 days, and physical testing (unconfined compressive strength) at 1, 2, 3, 7, 14, and 28 days. However, sludge treated by the DCR process attains the majority of ultimate strength immediately after compaction. No cure period is required. Because of this characteristic, SOUND will perform both physical and chemical testing one day after treatment for each of the three test runs. The one day period reflects the average anticipated time between waste treatment, treated material stockpiling, treated material placement in the landfill and final compaction. SOUND will perform treated material testing during treatment operations at compaction. Thus, the 24 hour stabilization system performance test should be conducted to verify performance in the same time frame.

To perform the stabilization system performance test, material will be excavated from lagoon 7 and placed in a corner of lagoon 6. The sludge required for the test, approximately 1,500 yards, will be

excavated out of this location and loaded into the treatment unit. Treated material from each 8hr treatment period will be stockpiled separately for testing.

On the day following treatment, each days production will be sampled for TCLP, paint filter and compressive strength testing. The APC system stack testing will also be performed using USEPA Methods 3 and 25 as specified. Tests will be conducted on a expedited basis.

Interim Operation

Following completion of the stabilization system performance test, which includes submitting a summary report to the regulatory agencies complete with all analytical and physical test results which meet performance requirements, operations will be initiated on an interim basis. Interim operation will be conducted using only a single shift stabilization crew until the stabilization system performance test report is reviewed and permission is obtained to begin two shift stabilization operations. Interim operations will be initiated when the first segment of cell 1 of the landfill is ready to receive stabilized waste due to the limited space available for stockpiling stabilized material.

Waste Excavation, Treatment and Placement Sequencing

Waste will be loaded into the treatment unit from lagoon 6. Treated material will be discharged by a stacking conveyor. Initially the material will discharged into the first half of cell 1. This portion of the cell will be completed and separated from the rest of the cell by a temporary berm. Waste will be moved into the cell and compacted in twelve inch loose lifts. As the project progresses waste will be moved into the balance of cell 1 and compacted.

Air Treatment System Monitoring

Periodic checks of the stack emissions will be made throughout the project to ensure compliance with air pollution requirements. A flame ionization detector (FID) will be used to monitor inlet and outlet VOC concentrations. Dust and particulates will be monitored visually and corrective measures to control particulate discharges will be taken whenever necessary. Fugitive particulate emissions from material handling and vehicle traffic on site roads will be monitored by the site superintendent and controlled with water spray.

SECTION III AIR EMISSIONS ASSESSMENT / CONTROL SYSTEM DESIGN

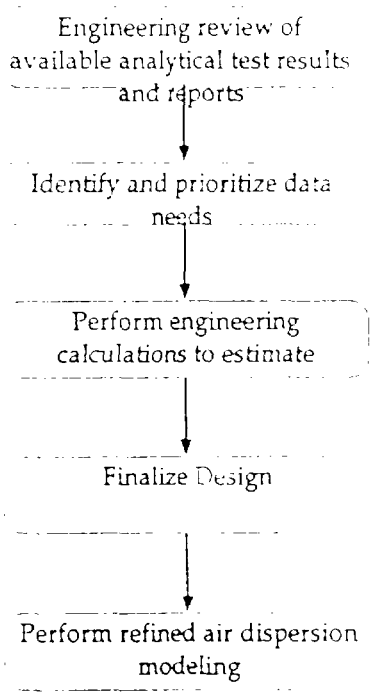
Introduction

This section describes the air assessment approach and presents a summary of the calculations and estimates made to determine the parameters used in the design and configuration of the air pollution control system that will be employed to control volatile organic emissions resulting from DCR stabilization / solidification of the waste sludges at the Commercial Oil Services Site in Oregon, Ohio.

Air Emission Control Design Approach

Figure III-1 illustrates the approach used to design an optimized DCR stabilization / solidification process that meets performance requirements.

Figure III-1
Air Emissions Control Design Approach



Engineering Review of Available Analytical Test Results and Reports

A review of the available reports, workplans and analytical test results from samples of waste sludges at the Commercial Oil Services Site in Oregon, Ohio, was performed to establish the basic information used in the emission control system design. The reports and information reviewed included the following:

- Treatability Study, McLaren-Hart, May 8, 1992
- Phase II Removal Action Work Plan for Tank Farm and Lagoon Closure, McLaren-Hart, May 14, 1992 (Revision 4)
- Revised Mass Balance Methodology, McLaren-Hart, publication date unknown
- Sampling Summary, CRA, August 22, 1996
- Sampling Results, CRA, September 23, 1996

Engineering Calculations to Estimate Emissions

Engineering estimates were performed using experience gained during SOUND Environmental Services, Inc. stabilization/solidification project at a similar superfund site in Sand Springs, Oklahoma. At that site, a transportable treatment unit equipped with a pollution control system similar to that which will be employed at this site was used to stabilize hazardous organic sludges. The sludges contained volatile organic compounds (such as benzene) and extensive bench scale studies were performed to determine mass emission rates from the various unit processes.

The equipment utilized a live floor trailer to allow reaction of the lime waste mixture in a batch type reaction chamber. At the maximum production rate expected (75 cubic yards per hour), and the design retention time in the reaction chamber of 20 minutes, the depth of the reacting waste will be about 2 feet across the entire floor of the trailer. During the hydration reaction, this bed of reacting waste is not mixed to reduce further volatilization of organic compounds. The stabilization process is not considered a thermal desorption process. The surface area of the reacting bed is 8 feet wide by 45 feet long (360 square feet), and is the only surface area available for organics volatilization and losses.

By looking at the exposed surface area of the bed surface, it was estimated that approximately 10% of the stabilized waste would actually be exposed to induced air crossing over the reacting waste mixture. This mass, when taken at the assumed high average concentration of TCE, results in about 60 pounds per hour of total volatile organics.

Finalize Design

On the basis of the engineering estimates, and the air pollution system BACT requirements for the project, final design of the air pollution control system was performed. The design involved solicitation of equipment specific information from a number of vendors specializing in the manufacture of volatile organic air emissions control systems. It also involved the use of spreadsheet models for the various organic constituents, their respective vapor pressures, estimated induced air flows, estimates of available volatile organics in the stabilized waste, and design destruction removal efficiencies for the various unit processes chosen. The air pollution control system described previously in Section II was determined to be BACT for the waste stream being considered.

Air Dispersion Modeling

Air dispersion modeling was performed using the SCREEN3 air dispersion model recommended by the Toledo Environmental Control and Ohio EPA. Results of this modeling is presented in Section X of this package.

SECTION IV LOCATION / OPERATOR INFORMATION

SOUND Environmental Services, Inc.
1 Operator Name

Jeffery P. Bauman
9 Primary Facility Contact

Commercial Oil Services Site
2 Facility Name

(972) 393-6965
10 Contact Phone Number

3600 Cedar Point Road
3 Facility Address (Street)

600 East Sandy Lake Road, #124, Coppell, Texas 75019
11 Contact Mailing Address (Street)

Dayton
4 City, Township, or Village (Circle)

NA
12 Mail Drop/Attention (if applicable)

Liberty County
5 County

6 Zip Code

11 City/Township

TX
14 State

7 ORIA Air Facility ID# (10-digit)

15 Zip Code

8 Facility Primary Standard Industrial Code

The facility will be located on a gravel equipment pad at the northeast corner of a 5 acre portion of the 20 acre parcel which formerly contained the tank farm area of the Commercial Oil Services Site.
16 Description of the Proposed Location of the Facility

SOUND Environmental Services PCB Transportable Treatment Unit
17 Name of new or modified source or facility

PCB Stabilized Waste Sludge
18 Product of new or modified source/facility

Date: 4/16/97
19 Authorized Signature (for facility)

Technical Applications Manager
20 Title

600 East Sandy Lake Road, #124, Coppell, Texas, 75019
21 Address (Street, City/Township, State and Zip Code)

EPA FORM 3150a - 08/95

SECTION V EMISSIONS UNIT INFORMATION FORM

Emissions Unit Information Form

One copy of this form should be filled out for each air pollution emissions unit covered by this information package.

25. OEPA Emissions Unit ID (4 digit number): _____

26. Company ID for Emissions Unit: COSS-2011-TTU-APC-002

27. Emissions Unit Activity Description: Process Operation DCR Stabilization/Solidification Waste

28. Equipment Description: DCR Stabilization Transportable Treatment Unit equipped with an A.I. Pollution Control System

29. Construction/Modification/Emissions Testing Schedule

	DATE
Equipment Ordered (month/year)	4/97
Commence Construction Date (month/year)	5/97
Initial Startup Date (month/year)	5/97
Most Recent Modification Date (if applicable) (as defined in OAC rule 3745-31-01(J))	NA
Performance Testing	5/97

30. Emissions Information:

Complete the following table for each criteria air pollutant proposed to be emitted from the emissions unit at a rate greater than the deminimus amounts (list each pollutant on a separate line), and for any pollutant for which an emissions limit has been established (per a state or federal regulation or Permit to Install) which limits air emissions of the pollutant.

Pollutant Name	Proposed Maximum Hourly Emission (lb/hr)	Proposed Maximum Yearly Emission (Tons/year)
Volatile Organics*	3	5.9

* NOTE: Volatile organics are treated as the most prevalent compound - trichloroethene (TCE). See Section K of this application package for the discussion of VOC concentrations in waste.

(If additional pollutants need to be identified, copy this page and attach the additional pages. Check here ☐ if additional copies of this page are attached.)

31. Proposed Operating Schedule:

	Hours Per Day	Hours per Year
Average	22	2,400
Maximum	24	4,600

32. Add-on Control Equipment Information:

Does this emissions unit employ add-on emissions control equipment? ☒ yes ☐ no

If your answer is yes, then fill out the table below. If your answer is no, then proceed to item # 34.

Control Equipment Type Codes:

A. Fabric filter/Baghouse	E. Flare	I. Concentrator
B. Electrostatic Precipitator	F. Wet Scrubber	J. Cyclone/Multiclone
C. Catalytic Incinerator	G. Condenser	K. Settling Chamber
D. Thermal Incinerator	H. Carbon Adsorber	L. Other: describe: Catalytic Oxidation/Caustic Scrubber

Item	Control Device #1	Control Device #2	Control Device #3
Type (See Above Codes)	A	L	
Configuration	Primary	Primary	

Control Equipment Type Code(s)(continued)

Manufacturer's Name

Company ID

Month Year Installed	5/92	5/92
Pollutant(s) Controlled	Particulate	Volatile Organics/Acid Gas
Operating Capture Efficiency (%)	≥ 95%	≥ 95%
Average Design Control Efficiency (%)	≥ 99.5%	≥ 99%
Operating Control Efficiency (%)	NA	NA
Inlet Gas Flow (acfm)	1,000	1,000 (maximum)
Inlet Gas Temperature (°F)	150	150
Maximum Controlled Emission Rate for Each Pollutant controlled (lb/hr, grain/dscf or ppmv)	NA	1 lb/hr

Supplemental control device information (see instructions)
Control Device #1

Control Device #2

Control Device #3

13. Attach a Process or Activity Flow Diagram for each emissions unit included in the application. Please see the instructions on page 17. Section VI of this package includes a process flow diagram for the emissions unit.

14. Emissions egress point(s) information: (Provide the following information for each point at which emissions are released into the ambient air from the emissions unit. List each individual egress point on a separate line):

Egress point type codes:

A. vertical stack (unobstructed) C. vertical stack (obstructed)
B. horizontal/downward stack D. fugitive

Egress Point Information Company ID for Egress Point	Type Code	Egress Point Shape (ft) Diameter	Egress Height (ft)	Temp (°F) Maximum	Flow (ACFM) Maximum	OER Building Height (ft)	OER Building Length (ft)
Stack #1	A	0.5	20	150	1000	NA	NA

EMISSIONS UNIT EGRESS POINT LOCATION INFORMATION Company ID for Egress Point	UTM Zone (16 or 17)	UTM Easting (6 digit) (m)	UTM Northing (7 digit) (m)	Base Elevation (ft)	Minimum Fenceline Distance (ft)
Stack #1					175

EPA FORM 3150-3 - 08/35

15. Are you applying, per OAC rule 3745-31-05, for federally enforceable limitations in this permit to install? ☐ yes ☒ no

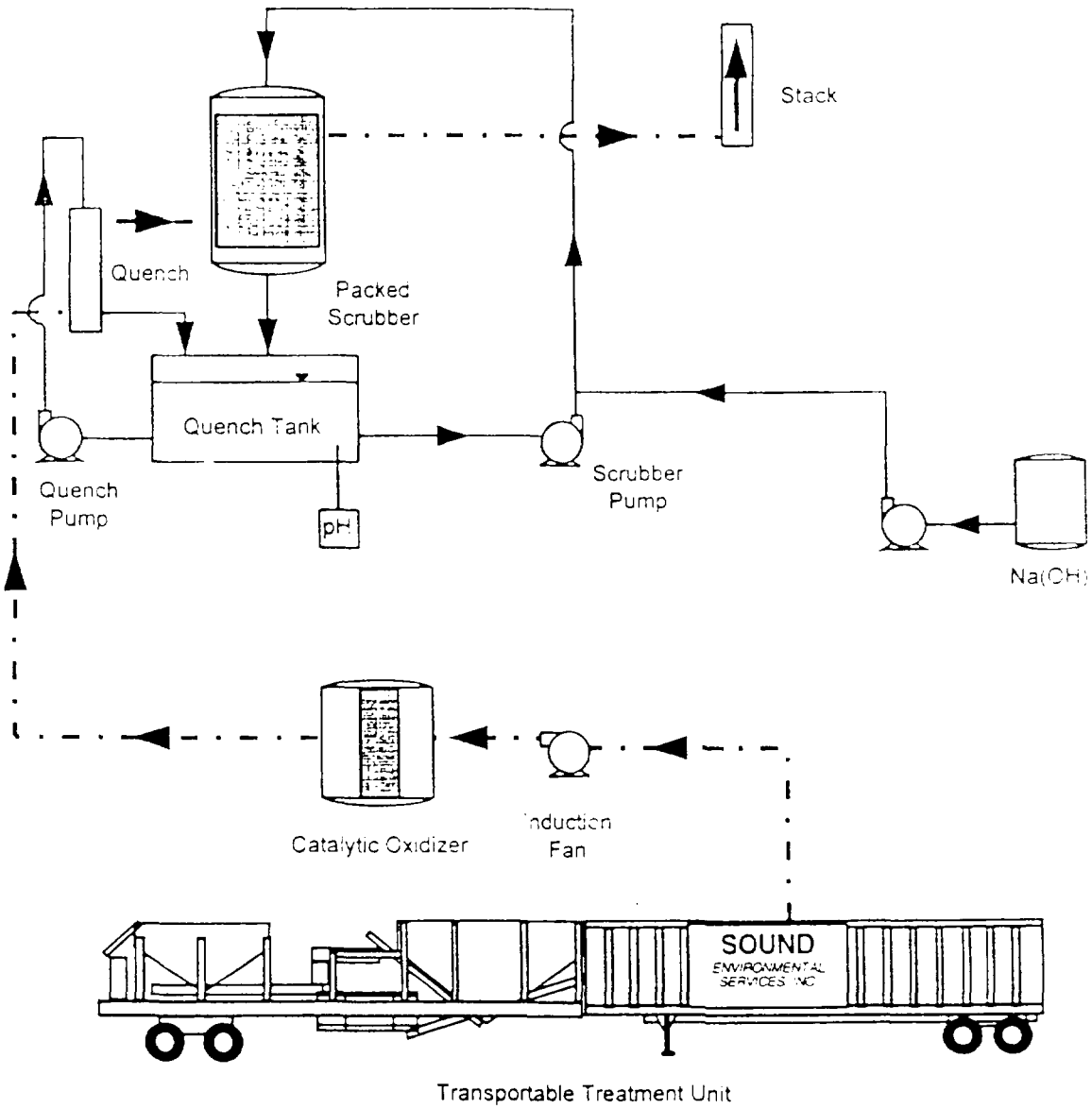
16. Are you requesting any information included in this application for this emissions unit to be claimed as a trade secret per Ohio Revised Code (ORC) 1333.61? ☐ yes ☒ no

17. Does this emissions unit utilize any continuous emissions monitoring equipment? If so, complete the following table. The monitoring will be periodically monitored manually.

Company ID for Emission Point	Type of Monitor	Manufacturer/ Model Number	Serial Number	Pollutant(s) Monitored

18. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each emissions unit. At least one complete EAC form must be submitted for each emission unit for the application to be considered complete.

SECTION VI PROCESS FLOW DIAGRAM



Transportable Treatment Unit

SECTION VII EQUIPMENT LOCATION DRAWINGS

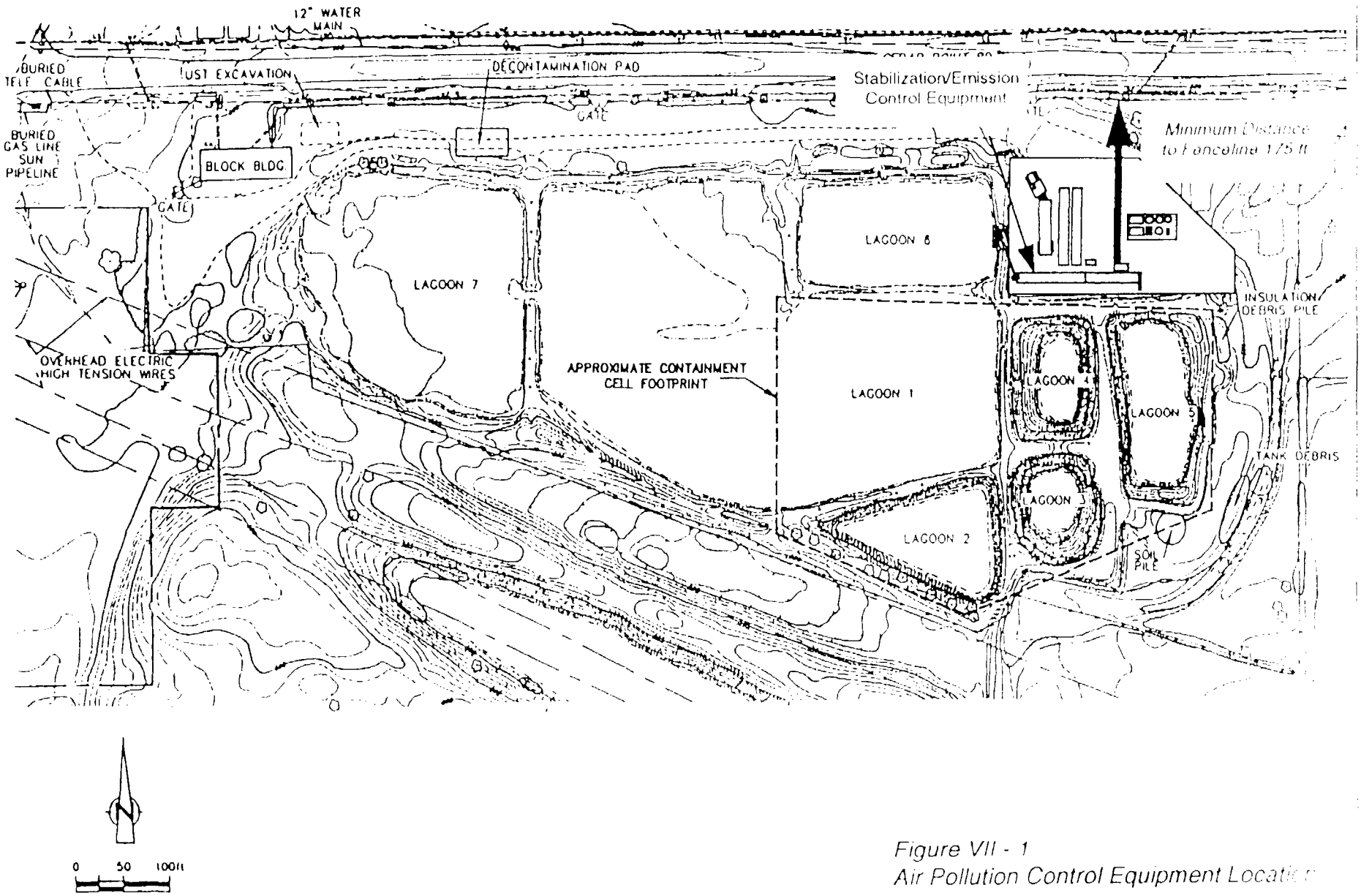


Figure VII - 1
Air Pollution Control Equipment Location

CRA

EMISSIONS ACTIVITY CATEGORY FORM
PROCESS OPERATION

OEPA EMISSIONS UNIT ID _____ **(If established)**

(Note: If there is more than one end product for this process, copy and complete this page for each additional product (see instructions).)

1. **End product of this process:** DCR Stabilized Sludge

2. **Hourly production rates (indicate appropriate units):**

   Average production: 50 tons/hour
   Maximum production: 75 tons/hour

3. **Projected maximum annual production (indicate appropriate units):** 100,000 tons

4. **Actual annual production (indicate appropriate units):** NA

5. **Type of operation:** Hazardous waste stabilization / solidification

6. **Materials used in process at maximum hourly production rate:**

Material	Physical State at Standard Conditions	Principle Use	Amount (lbs/hr)
Quicklime	Solid	Stabilization Reagent	45,000
Water	Liquid	Wetting Agent, hydration	15,000

SECTION IX ADDITIONAL INFORMATION FORM

Additional Information Form

The following additional information is being submitted with the information package. This additional information is divided into four sections: General information which is required information required for air pollution applications, information required for wastewater applications and information required for solid waste disposal facilities.

Additional Information

1. Will the proposed source/facility involve any of the following (Check all that Apply)?

☒ Air Discharge
☐ Wastewater Treatment Works
☐ Solid Waste Disposal Facility
☐ Hazardous Waste Disposal Facility

2. State the reason for the application. Is this a new installation, modification to an existing source/facility, reconstruction of an existing source/facility, or startup of a source/facility that has been permanently shutdown for _____ year?

This is a new installation of a temporary system under a Superfund CERCLA permit exemption.

3. Has a previous Ohio EPA application or plan submission been filed for this source/facility? If so, state the date and type of application previously submitted.
☐ yes ☒ no Date: _____ Type: ☐ Air ☐ Solid Waste ☐ Wastewater ☐ Hazardous Waste

4. Will the proposed source/facility comply with all rules, laws, and regulations of Ohio EPA and U.S. EPA? ☒ yes ☐ no

5. Do you wish to request permit to install registration status via Ohio Administrative Code 3745-31-05(E)? ☐ yes ☒ no

6. Are the proposed sources required to comply with the following federal requirements? Note: Don't be afraid to call your Ohio EPA field office contact to ask them if your emissions units need to comply with these standards.

☐ yes ☒ no New Source Performance Standards (NSPS)

New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources. If your emissions unit(s) are listed under one of these standards then answer yes.

☐ yes ☒ no National Emission Standards for Hazardous Air Pollutants (NESHAPS)

National Emissions Standards for Hazardous Air Pollutants are listed under 40 CFR 61. If your emissions unit(s) are listed under one of these standards then answer yes.

☐ yes ☒ no Maximum Available Control Technology (MACT) Standards

The Maximum Available Control Technology standards are listed under 40 CFR 63. If your emissions units(s) are listed under on of these standards then answer yes.

☐ yes ☒ no Prevention of Significant Deterioration (PSD)

These rules are found under 40 CFR 51.21.

☐ yes ☒ no Appendix "S" - Emission Offset Policy

This policy can be found under "Appendix S to 40 CFR part 51 - Emissions Offset Interperative Ruling."

☐ yes ☒ no
Are there any other federal requirements applicable? (i.e., 40 CFR Part 75, Title IV requirements (acid rain), etc.)
If so, answer yes and list the rule citations.

7. Will the proposed emissions units employ best available technology (BAT)? This is required under this Administrative Code 3745-31-05 A(3). The determination of best available technology can be found in Ohio Revised Code 3704.01(F) and is defined as: "*Best Available Control Technology*" means an emissions limitation (including a visible emissions standard) based upon the maximum degree of reduction for each pollutant subject to regulation under the clean air act which would be emitted from any proposed major stationary source or major modification which the director, on a case-by-case basis, taking into account energy, environmental and economic impacts and other costs, determines is achievable for such major stationary source or major modification through application of production processes or available methods, systems and techniques, including fuel combustion techniques for control of such pollutant.

☒ yes ☐ no

8. Will the proposed emissions unit/facility comply with all rules, laws, and regulations of the Ohio EPA and U.S. EPA?

☒ yes ☐ no

9. Will the proposed sources cause the significant degradation of air quality?

☐ yes ☒ no

10. Will the proposed sources interfere with the attainment and maintenance of the ambient air quality standards?

☐ yes ☒ no

11. Describe any emissions unit monitoring, emission monitoring, or control equipment monitoring devices to be installed by the applicant which are not already described in the attached Emissions Activity Form(s).

Emissions unit monitoring will be performed using a flame ionization detector calibrated for the compounds of concern after the initial startup system performance stack testing using EPA methods 5 and 25.

12. Will the proposed emissions unit(s) involve the use of asbestos, benzene, beryllium, mercury, or vinyl chloride?

☐ yes ☒ no Asbestos
☐ yes ☒ no Benzene
☐ yes ☒ no Beryllium
☐ yes ☒ no Mercury
☐ yes ☒ no Vinyl Chloride

13. Please include the estimated cost of any air pollution control equipment to be installed on the proposed emissions unit(s).

The estimated cost of the air pollution control equipment including the reaction chamber, catalytic oxidation unit, and caustic scrubber unit is $202,200.00

SECTION X SCREEN 3 MODEL OUTPUT

04/15/97
09:50:36

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

COMMERCIAL OIL SERVICES SITE

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = .328000
STACK HEIGHT (M) = 6.5600
STK INSIDE DIAM (M) = .1640
STK EXIT VELOCITY (M/S)= 24.5759
STK GAS EXIT TEMP (K) = 338.0000
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = 2.0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = .0000
MIN HORIZ BLDG DIM (M) = .0000
MAX HORIZ BLDG DIM (M) = .0000

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 1100.0000 (ACFM)

BUOY. FLUX = .216 M**4/S**3; MOM. FLUX = 3.520 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	1	1.0	1.0	320.0	18.65	1.28	1.22	NO
100.	147.8	3	2.5	2.5	800.0	11.40	12.54	7.57	NO
200.	137.5	4	2.0	2.0	640.0	12.61	15.66	8.67	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

100.	147.8	3	2.5	2.5	800.0	11.40	12.54	7.57	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
57.	128.7	2	3.0	3.0	960.0	10.59	11.59	6.38	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	147.8	100.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

COMMERCIAL OIL SERVICES SITE, OREGON, OHIO

AIR DISPERSION MODELING SUMMARY SHEET

POINT SOURCE SCREEN3 TABLE (METRIC)

TEMP out	338	K	BUILDING	NO	FLOWacfm 1100
TEMP amb	293	K	U/RURAL	RURAL	
EMISS rate	148.8	g/s	RECEPTOR	2.0 m	

ug/m³

HEIGHT	DIA.	STABILITY	57m CONC	CONCmax	DISTmax
6.56	0.328	FULL	2.30E+02	2.68E+02	120
6.56	0.164	FULL	1.29E+02	1.48E+02	100
13.12	0 164	FULL	3.33E+01	7.30E+01	246

TLV / 42 ug/m³ / 42 =

Toluene 4476

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

SR-6J

March 11, 1997

James Campbell, Ph.D., P.E.
Engineering Management, Inc.
2020 Ardmore Boulevard
Suite 327
Pittsburgh, PA 15291

Aloysius Aguwa, Ph.D.
Altech Environmental Services
24175 Northwestern Highway
Suite 3
Southfield, MI 48075

VIA TELEFAX AND FIRST CLASS U.S. MAIL

Re: Draft Risk-Based Remediation Goals Assessment (RGA) and Remedial Action (RA) Design Documents for the Lagoon Closure Removal Action, Commercial Oil Services Site, Oregon, Ohio

Dear Drs. Campbell and Aguwa:

The U.S. EPA and its consultant, Ecology and Environment, Inc., have reviewed the draft RGA document of February 24, 1997 and the RA Design and Construction Documents (volumes 1-3 and drawings) of February 20, 1997 for the Lagoon Closure Removal Action at the Commercial Oil Services (COS) site. These documents are required as per the Phase II Administrative Order by Consent, effective February 17, 1994. This most recent draft was resubmitted to the Agency in response to our letter of February 19, 1997 in which U.S.EPA required additional modifications to the documents in order to meet with its approval.

U.S.EPA finds that the requested changes have been made to the RGA and RA Design Documents in accordance with its specifications and that the Final Design meets the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements. The COS Phase II Group respondents are hereby notified that these documents are approved by U.S. EPA.

The Agency is in the process of completing the administrative procedures necessary to secure removal action oversight support for this project under the new regional contract, and will keep

you apprised of the situation. In the mean time, if you have any questions regarding the contents of this letter, please do not hesitate to contact me at (312) 886-5251.

Sincerely,

Sheila A. Sullivan
Removal Project Manager
U.S. EPA, Region V

cc: E. Peterson, COS Technical Committee
A. Van Norman, CRA
T. Huntrods, CRA
D. Haynam, Fuller & Henry
B. Horenziak, E & E
D. Tiebout, E & E
R. Murawski, U.S. EPA, ORC
D. Ballotti, USEPA
B. Sypniewski, USEPA, RRB
File Copy